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U. S. RADIO FARM SCHOOL

Friday, Mar. 2.

(NOT FOR PUBLICATION)

Livestock and Dairy Meeting No. 22.

SUBJECT: Feeding Dairy Calves.

ANNOUNCEMENT: This is dairymen's day at our farm club. You see our local milk and butter men over there. They seem to have cornered that Department of Agriculture man. Let's mosey over and find out what they are asking him -----

EXPERT: Certainly! -- When you feed a calf separated milk from a creamery, it should always be pasteurized. Unless this is done it is practically impossible to know that such milk is free from organisms that cause disease.

BRUNTON: I always wash and scald my calf pails to sterilize them after each feeding.

EXPERT: That's the thing to do, Brunton. Cleanliness is absolutely essential to success in raising calves. All milk and other feed should be fresh and clean. Keep the calf pens clean and well bedded with dry material. Clean out the discarded feed from the feed boxes every day.

BRUNTON: How about feeding the calves?

EXPERT: Well, during the first two weeks give the calf whole milk, preferably from its mother. Feed that milk three times a day at even temperature of about one hundred degrees.---

BRUNTON: If the milk is too rich, it is apt to give the calf scours, isn't it?

EXPERT: Yes, it may, and if it does, you may dilute it with skim milk or water. Weigh the milk at each feeding. It is better to feed a calf too little than too much.

BRUNTON: How much milk would you feed a calf at first?

EXPERT: Six to nine pounds of milk a day, divided equally into three feedings, is enough for the average sized calf for the first week. During the second week, you can give the calf three pounds more a day, if it is doing well.

BRUNTON: When would you change from whole milk to skim milk?

EXPERT: If the calf is doing well, Brunton, you can gradually substitute skim milk for whole milk when it is about two to three weeks old. Make the substitution at the rate of about one pound a day. But don't increase the total amount of milk fed while you are making the change. If any sign of scours shows up, the milk is not being properly digested. In that case, delay any further substitution of skim milk for whole milk until that condition clears up. Take all the foam off the skim milk, as it sometimes causes digestive trouble and bloating.

BRUNTON: After making the change from whole milk to skim milk, how many pounds of skim milk a day would you finally work up to?

EXPERT: Well, calves weighing from 50 to 75 pounds need about ten pounds of skim milk a day when they are four or five weeks old. Calves weighing 75 to 100 pounds need about fourteen pounds of skim milk a day. You can increase that amount two pounds every two weeks until the calf is getting 16 to 20 pounds a day or more. If it's available, feed skim milk until the calf is six months old. Fact is, skim milk can be fed to advantage to calves as old as eight or ten months.

BRUNTON: When would you start feeding hay and grain?

EXPERT: You can give small amounts of hay and grain at the beginning of the third week. Feed clean, bright clover, alfalfa, or mixed hay. Feed hay sparingly at first. Increase the amount gradually as the calf gets accustomed to it.

BRUNTON: What would you call "a small amount" of grain?

EXPERT: Well, a calf three weeks old will eat only a handful or two of grain a day. You can increase that amount gradually until the calf gets about one-half pound a day when it is four weeks old, one pound at six weeks, one and a half pounds at eight weeks, and two pounds at ten weeks to three months old. Later, if the calf is not gaining satisfactorily on less, you can feed three pounds or more a day.

BRUNTON: What grains are best to feed?

EXPERT: Home grown grains, such as corn and oats, and bought feeds, such as wheat bran and linseed meal, are good calf feeds. Here are some good mixtures.

BRUNTON: Let's have them.

EXPERT: Three parts, by weight, of cracked corn and one part wheat bran.

BRUNTON: Three parts cracked corn and one part wheat bran.

EXPERT: Yes, or here's another: Three parts cracked corn, one part wheat bran, and one part ground oats.-----

BRUNTON: Let me get my pencil. Three cracked corn, one wheat bran, and one ground oats.

EXPERT: Right. Or you might try one with one part linseed meal added.

BRUNTON: That would be, three parts, by weight, of cracked corn, one part wheat bran, one part ground oats, and one part linseed meal.

EXPERT: That's right. And here's another: Five parts by weight of cracked corn, one part wheat bran, one part ground oats, and one part blood meal. Or ground oats by itself makes a good calf feed.

BRUNTON: How about feeding silage?

EXPERT: Silage is not a satisfactory feed for the young calf. After the calf gets to be three months old, you might feed a little silage. Two pounds a day is enough for a three-month-old calf. You can gradually increase the daily amount at the rate of one pound for each month's increase in the calf's age. But never feed moldy silage. It is apt to cause indigestion and poisoning.

BRUNTON: I've got a neighbor who raises his calves on dry skim milk.

EXPERT: Yes, dry skim milk, when it is fresh and wholesome, and when it is properly mixed with water to about the composition of milk, makes a good substitute for fresh skim milk.

BRUNTON: How about replacing the whole milk with calf-meal gruels instead of skim milk -----

EXPERT: Well, you can get fairly good results with good calf meal if you feed it properly; although it is not as satisfactory as fresh skim milk. Here's a good calf meal mixture worked out at the experimental farm of the Bureau of Dairy Industry at Beltsville, Maryland: 50 parts, by weight, of finely ground corn, 15 parts linseed meal, 15 parts finely ground rolled oats, 10 parts dried blood flour, 10 parts dry skim milk, and one-half part salt.

BRUNTON: How would you prepare that mixture for feeding to the calves?

EXPERT: Well, mix it to a smooth consistency with an equal weight of cold water. Then add eight pounds of warm or boiling water for each pound of the dry calf meal. Stir thoroughly until well mixed and then let it stand for several hours. Before feeding, warm the mixture to 100 degrees before feeding. Mix only enough at one time for one or two feedings. You can feed the whole milk until the calf is four weeks old and then substitute the calf meal gruel very gradually. Take four weeks to complete the change and continue to feed the gruel until the calf is four to six months old. You can feed the same quantity of gruel as you would have fed skim milk.

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BRUNTON: How about the hay and grain? How much would you feed with calf-meal gruel?

EXPERT: The same amount as with skim milk. When you feed gruel the calf must have a good quality of fine-stemmed alfalfa, clover, or other legume hay to supply the minerals which would be furnished by milk. And remember, Brunton, even though a calf drinks milk it needs water when two or three weeks of age. Provide plenty of fresh, clean water so that the calf may drink whenever it wants to. When the calf is old enough to eat roughage, let it get to salt also.

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U. S. RADIO FARM SCHOOL

Mon., March 18, 1928.

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Crops and Soils Meeting No. 23.

U. S. Department of Agriculture

SUBJECT: Wastage of Fruits and Vegetables in Transit and Storage.

ANNOUNCEMENT: This is the farm club. Come on in. The meeting has already started. The man over there talking to Ben Logan is the Department of Agriculture expert. He gives us the latest information on farming --- Listen to him ---- You may pick up some good ideas ----

EXPERT: -- Why, Logan, you don't seem to realize --- Fresh fruits and vegetables are alive. They are subject to disease, damage, and death. -- The wastage in shipping is tremendous. During marketing every year, millions of dollars worth of fruits and vegetables are lost.

LOGAN: -- You mean, the losses in transit and in storage?

EXPERT: Yes. Although fresh fruits and vegetables amount to almost two per cent of the total freight tonnage originating in the United States, over twenty-one per cent of the total damage claims paid on all commodities by railroads is for fruits and vegetables.

LOGAN: Maybe so. But how much of that was due to there being something the matter with the fruits and vegetables, when they were shipped?

EXPERT: About 50 per cent of that loss was probably due to plant diseases. Looking at it in another way, the claims paid in one year on fresh fruits and vegetables amounted to an average of about \$9.71 per car, as compared with fifty cents a car for all other commodities. But that's not all. There are, of course, damages in transit which are not represented by claim payments. Then, too, there is a lot of wastage on the wholesale and retail markets. There is also some loss even in the kitchens of the consumers.

LOGAN: Whose fault is that? Are farmers to blame for "specks" and "rots" that show up after the stuff gets to market?

EXPERT: Sometimes they are, and sometimes they are not. Since 1917 we have had Food Products Inspectors of the United States Department of Agriculture at the bigger terminal markets. They have been able to find the real cause of trouble in the case of many fruit and vegetable shipments that have ended in big losses.

LOGAN: What good does that do? That seems to me like locking the stable after the horse is gone.

EXPERT: When we know the cause of the trouble, we find that in some cases the loss might have been prevented by control measures applied either in the field or at some point during the process of distribution. No one can do anything about "specks" and "Rots"; but the situation is different when inspectors, trained to recognize specific plant diseases, make an accurate inspection and a definite identification of the trouble. By analyzing the causes of wastage in a carload of fruits and vegetables, we are paving the way to the prevention of future losses.

LOGAN: Just what do you mean?

EXPERT: Take the potato crop, for example. Last fall, shipments of potatoes from the New England States to Boston were described by the trade as being very wasty. The Boston Health Commission in one month found it necessary to condemn and destroy 82 carloads of those potatoes valued at about \$58,000. Added to that, the freight and demurrage amounted to about \$138 a car. -----

LOGAN: -- But what good did the inspection do?

EXPERT: Why, when the potatoes were examined by the inspectors it was found that the trouble was due to rots following infection with the late blight. Now plant pathologists know that the damage from potato blight can be greatly reduced by the proper application of Bordeaux mixture spray. Farmers who follow the recommended spray practice usually get bigger yields and better insurance against such losses during marketing.

LOGAN: Does it take an expert to recognize a thing like that?

EXPERT: Yes. You must realize, Logan, each crop is affected by one or more plant diseases. Fact is, there are at least eight diseases of beans, twelve of cabbage, eight of celery, seven of cucumbers, ten of onions, twenty-four of potatoes, and forty of citrus fruits. Any one or several of those diseases may cause trouble in a single shipment. In the case of apples, there are more than thirty-five spots, rots, or blemishes which may be found in the car when it reaches its destination. Each of those diseases is likely to have its own peculiar relationship to the market problem.

LOGAN: And you say a lot of these diseases start in the field?

EXPERT: Certainly. For instance, the nail-head spot of tomatoes. Either through carelessness or ignorance, nail-head spot continues to be a very serious cause of tomato losses in transit.

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LOGAN: What causes nail-head spot?

EXPERT: Tomatoes affected with nail-head spot come from vines which have been attacked by the early blight fungus. Spores or fungous seed bodies are formed on the leaves. They wash down or are spattered by raindrops onto the fruit where they can cause infection. Those spots on the fruit not only detract from its appearance, but they also open the way for other rot-producing organisms.

LOGAN: How can that be prevented.

EXPERT: You mean, in the car? Well, you should discard the spotted tomatoes at the time of packing for market to avoid secondary rot-producers at the time of transit. Nail-head spot can be controlled in the field by using resistant varieties or if they are not available, the damage can be reduced by spraying with Bordeaux mixture.

Another serious fungous disease of tomatoes is known as Phoma rot. Spores formed on the leaves can infect the tomato if the skin is injured.

A still different type of fungous disease is tomato soil rot. It is caused by an organism that lives in the soil. Tomatoes on the ground or near enough to be spattered with soil during rains may be infected. Those which are infected at shipping time will develop serious decay during transit. In transit the fungus may spread to neighboring tomatoes, even growing through the paper wrappers. You can control the disease, however, by staking the vines so the tomatoes won't come in contact with the soil. Of course, tomatoes which have brown spots when they are picked should not be packed for shipment.

LOGAN: But you said that all rots didn't start in the field, didn't you?

EXPERT: Yes. There's Rhizopus rot of tomatoes, for instance. It is a quick rot caused by the common bread mold fungus, an organism whose spores are particularly plentiful in places where fruits and vegetables are being handled for shipment. Rhizopus attacks over-ripe tomatoes that have been injured in one way or another.

LOGAN: Farmers can't help what happens after the crop is shipped.

EXPERT: Well, it is usually true, that on studying the ways to cut down losses from plant diseases during marketing, we are struck by the fact that improvements can be made only by the cooperation of all concerned. In one instance, you must select disease free seed. In another, seed disinfection and planting on disease-free soil must be practiced. At times, you farmers must spray. In the case of other troubles, the railroad car or the storage house must be better ventilated and kept at a proper temperature, neither too hot nor too cold. In fact, all of those different things may be needed in the case of one crop or one disease of one crop. So you see, as far as wastage due to plant diseases is concerned, you can't arbitrarily shift the blame to the other fellow. Depending on the crop or the disease, the responsibility may rest sometimes on the grower or shipper, sometimes on the carrier or cold storage man and sometimes on each of them in proportion as each fails to provide conditions that check the development and spread of the disease.

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In 3Fs
U. S. RADIO FARM SCHOOL

Wed. March 7.

(NOT FOR PUBLICATION)

Farm Economics Meeting No. 23.

SUBJECT: Cooperative Creameries.

ANNOUNCEMENT: You who have been attending these Wednesday meetings of our farm club, know that we've been talking a good bit about cooperative marketing here lately. Thanks to that Department of Agriculture man, down front there, we get the facts and figures from co-ops all over the country ----- Sure --- Crowd on down front there, if you want to hear what they are saying -----

CLAYTON: You say there hasn't been much increase in the number of creameries, in the past few years?-- That is, for the United States as a whole?

EXPERT: No, Clayton, not any big increase in the number of creameries; but there has been a big increase in the amount of butter made by creameries.

CLAYTON: How is that?

EXPERT: Better roads and automobiles have increased the territory which a creamery can serve. For instance, in Minnesota several creameries have been closed during the past five years, but the number of farmers patronizing creameries has shown some increase. However, the number of creameries is not the whole story. Probably at no time has the cooperative creamery movement been in a stronger position than at present. And there never has been more interest on the part of farmers in the manufacture of the highest grades of butter.

CLAYTON: Minnesota, Iowa, and Wisconsin are the big butter states, are they not?

EXPERT: Yes, 42 per cent of the creamery butter made in the United States comes from Minnesota, Iowa and Wisconsin. Furthermore, at least 60 per cent of the country's supply of the finer grades of butter is made in those States.

CLAYTON: How much of that is made by co-ops?

EXPERT: Oh, about 70 per cent of the butter manufactured in Minnesota, Iowa, and Wisconsin, is made in cooperative creameries. There are about 1,200 of these farmer-owned plants in operation.

CLAYTON: How many of those 1,200 plants, do you suppose, will make a go of it?

EXPERT: Why, for the most part, they are already established business concerns. They are well past the experimental stages. The first of these cooperative

creameries were established in the early nineties, and the majority of them were built before 1910. There is no question that cooperative creameries, under competent management, are doing a well worth while service to the dairy farmers.

CLAYTON: About how much butter will one of these co-ops make in a year?

EXPERT: The typical cooperative creamery in Wisconsin, Iowa, and Minnesota is a farmer-owned plant manufacturing from 300,000 to 400,000 pounds of butter a year. A number of the plants make well over a million pounds, but they are rather unusual.

CLAYTON: Are the creameries really run by farmers?

EXPERT: Yes, each plant is managed by a board of directors, who in most instances are farmer-producers. The board, of course, hires an operator or butter-maker who is in charge of the actual manufacturing of the butter. The creameries are financed by local capital, generally through the sale of stock to the producers.

CLAYTON: Why is it that cooperative creameries seem to do so well?

EXPERT: The creamery is a relatively small plant. It is usually located where butterfat production is heavy. It is therefore near the producers and within easy reach of a large enough volume of cream to insure economical manufacture. Creameries are particularly well suited to the intensive dairy sections, especially for the making of high-grade butter.

CLAYTON: How about these centralized co-op creameries? Some of them seem to be doing well.

EXPERT: Oh, yes. There are now several very successful associations of that kind operating in Nebraska, South Dakota, and Kansas. The cooperative centralized creamery is adapted to those sections where dairying is not intensively developed.

CLAYTON: Well, ---getting right down to brass tacks --- What has the co-op creamery ever really done for dairy farmers or for the dairy business?

EXPERT: Well, first, Clayton, with a creamery near the farm, cream can be delivered three or four times a week. You realize, of course, that regularity and frequency of delivery are the important things in getting a high grade of cream. The quality of the butter manufactured depends in large measure upon the condition of the cream received at the plant.

CLAYTON: Then, you'd say that the success of the co-op creamery is largely due to its being better able to get good cream for making high-grade butter?

EXPERT: Yes, a big percentage of the fine butter received at the principal markets is manufactured in the cooperative creameries in Minnesota, Iowa, and Wisconsin. That's the important contribution the cooperative creameries have made to the dairy industry; they've taken the lead in the production of the finer grades of butter. Creameries also have had a special advantage in the manufacture



U. S. RADIO FARM SCHOOL

Friday, March 9

Livestock and Dairy Meeting No. 23.

SUBJECT: Balancing Rations.

NOT FOR PUBLICATION

ANNOUNCEMENT: Ever since last meeting, the members of this farm club here have been anxious to get together again and talk some more about feeding. Some of those men down there now are talking feed for livestock---- Yes, that bunch down there with the Department of Agriculture man----- Listen! ----

ALLEN: -- Say, what do you mean by "balancing rations?" You all have been talking here about "balanced rations" in livestock feeding, but I'll admit I'm a little hazy about how to go about it----

EXPERT: I'm glad you brought that up, Allen. That term "balanced ration" is certainly one of the most abused and misunderstood in the whole livestock raising business.

ALLEN: Yes, I've got a neighbor. He tried to "balance" his cattle rations--- You should have seen some of his stock after he had tried it awhile. They were poorly fed, if I'm any judge of livestock.

EXPERT: I don't doubt it. In practice, the balancing of rations for farm animals can be made very simple. On the other hand, if it is misunderstood, the results may be worse than if it had never been tried.

ALLEN: That's what I was driving at. I want to know what a balanced ration should be like?

EXPERT: Well, by definition, a balanced ration is one which will furnish the proper quantities and proportions of protein, carbohydrates, and fat to nourish a given animal for 24 hours.

ALLEN: Huh! ---- That doesn't sound very simple.

EXPERT: In practice, however, a ration may be otherwise perfectly balanced. But if it is not palatable --- if it is not relished by the livestock --- it is not a good ration. Then, too, a ration may contain exactly the proper amounts of the different nutrients needed by the animals but may lack the succulence needed to keep the stock sleek and contented-----

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ALLEN: Yes, and it may be well balanced from a scientific standpoint, and cost too much for practical purposes.

EXPERT: That's true. It is a wise farmer who balances his rations with feeds grown on his own farm. And in all cases, you should study the needs of the animals being fed. That old saying "The eye of the master fattens his cattle" applies to feeding all kinds and ages of livestock.

ALLEN: I followed that before I ever heard of balanced rations.

EXPERT: --- Young, fast-growing animals should never be allowed to get fat and pauchy. The brood sow, which is secreting large quantities of milk with a lot of protein, lime, and phosphorus in it, must be given a ration with all the tankage and minerals she can use. The laying hen can not produce shells without lime; soft-shelled eggs will be the result. The horse at work needs more and richer feed than the idle one. A nervous, excitable horse should be fed differently from a quiet "old sheep" of a horse.

ALLEN: I'd gather from that, that balancing rations is just fitting the feed to the needs of the stock.

EXPERT: Yes, that's the idea. One of the best examples of feeding an unbalanced ration is that of the farmer who throws a lot of shelled corn out on the ground for his laying hens to gobble up, and who then wonders what made his hens stop laying eggs.

ALLEN: What's wrong with that? Isn't it all right to feed hens shelled corn?

EXPERT: Well, by shelling the corn, he robs the hens of considerable exercise in the first place. It would be better to throw the whole ears to them and let them pick it off the cob. But aside from that, the ration of corn is not balanced for egg laying. It is just the thing to make the hens store up layer upon layer of body fat. For egg laying, hens must have plenty of protein in their feed. Tankage, meat meal, and skim milk contain a lot of it. The white of an egg is almost pure protein and water, whereas corn is very low in protein. Feeding a hen on a ration of corn would store up in her body enough fat for the yolks of many dozens of eggs, but where would the protein for the whites come from?

ALLEN: Our hens used to lay pretty well, and we didn't know anything about balancing rations, either.

EXPERT: Yes. When you turned hens loose to range over the barn lot, they picked up their own feed. They probably did a good job balancing their own rations. They probably picked up grasshoppers, crickets, and wheat kernels where the threshing outfit stood. They picked up young, tender weeds and grasses, bugs and worms. Altogether, they probably got a well-balanced ration-----Do you want to know where you can learn a good deal about balancing rations?

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ALLEN: Sure. Where?

EXPERT: From your hogs.

ALLEN: Huh? Just how you mean?

EXPERT: Well, the hog is one of the few animals that never eats himself sick, even when plenty of the richest foods are put before him. A hog never founders. He always seems to know when he has had enough. You put a hog in a pasture with a self-feeder containing corn, middlings, tankage, and a good mineral mixture, and that hog will do a first-class job of helping himself to the right feed in the proper proportions.----

ALLEN: --- And that hog never even saw inside of a Government bulletin on balancing rations -----

EXPERT: Of course, he doesn't say to himself, "Now, I must leave this nice, rich corn and mosey over to the compartment containing tankage and eat a little of that, so's to put a good, thick strip of lean in my bacon." A hog balances his rations unconsciously and by natural choice, but nature is a good guide. The tankage or shorts compartment of a self-feeder must look to a pig as a sack of candy does to a child. Yet the pig will eat just enough tankage to grow good hide, bristle, and muscle. Then he will wander off like a well-trained child to eat his "green vegetables" in the form of succulent pasture.

ALLEN: Where could I get a set of rules and tables for balancing rations for a herd of beef cattle?

EXPERT: Don't worry about that. In fattening steers or in wintering a herd of beef cows, as in feeding other classes of livestock, common sense will usually go much further than any set of rules. If you give the cattle all the good-quality clover or alfalfa hay they will eat, and also pasture during as much of the year as possible, they will get a well-balanced ration, no matter what grain you may feed. Legume hay, pasture/^{long as} possible, salt at all times, grain enough to suit the animals particular needs, and plenty of fresh water --- and the rest is easy.

ALLEN: The rest is just keeping an eye on the livestock and feeding them according to their needs?

EXPERT: Yes, well-balanced judgement is the most important thing in balancing rations.

U. S. RADIO FARM SCHOOL

NOT FOR PUBLICATION

Crops and Soils Meeting No. 24.

SUBJECT: Forest Tree Planting on the Farm.

Mon., March 12, 1928

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U. S. Department of Agriculture

ANNOUNCEMENT: --- Come right in --- Yes, this is the farm club --- You'll find a seat down front there a little way -- Those two men talking down there now are Walter Bruce and the expert from the Department of Agriculture --- Just slip down there, and you can hear what they are saying -----

EXPERT: ---- If you want to find out about planting forest trees, why don't you get in touch with your local agricultural agent, or your State Forester, or with the United States Forest Service?

BRUCE: -- Can you get trees from them?

EXPERT: Well, in 35 States and in Porto Rico and Hawaii, State forestry agencies are distributing forest planting stock to farmers at a low price. They are doing it in cooperation with the United States Forest Service, under the Clarke-McNary Act agreements.

BRUCE: I've noticed farmers around here taking more interest in woods. I didn't know it was the same way all over the United States.

EXPERT: -- Yes, they're planting trees to increase the farm values. Why, farmers are using about 25 million small trees for that purpose each year. About 25,000 acres are being planted with those trees. And from now on, they are likely to plant a lot more.

BRUCE: Why is that?

EXPERT: Well, the uses differ in different parts of the country. In many sections the planting is done to start new farm woodlands or to improve old ones. You see, our more intensive farming these days is throwing into the discard many a plowed field which cannot be made to yield enough under modern conditions. When such land can be planted by farm labor with stock at a low price, making woodland of it is a first-class investment.

BRUCE: But trees take years to mature! ----

EXPERT: Yes, but a young woodlot adds cash value to the farm just as a young orchard does. In a few years, the trees yield small material in the form of thinnings, which make fuel and fence posts. Later they become a source of pulpwood and poles. Finally, perhaps, the mature trees can be most profitably sold for such products as ties and saw timber. Yes, Bruce, the farm woodland is often a savings bank that pays compound interest.

BRUCE: Trees are good to stop washing of the soil, too,

EXPERT: You can't beat them for that. The spongy cover of woods mold and the porous soil underneath store up a lot of water. Later, they feed it out slowly and help keep up the springs. Thousands of woodland tracts on farms now need building up by the planting of trees. They also could be greatly improved by care and by cutting so as to keep the best varieties in the most thrifty and fast growing condition.

BRUCE: I wouldn't take anything for my strip of woods. It also serves as a windbreak. It shelters the stock and the farm house from the winds, to say nothing of adding to the looks of the farm and making life worth living.

EXPERT: Yes, the advantages of big, well located windbreaks, both from the point of view of increased values of the farm property and improvement in living conditions, can hardly be exaggerated. But that's not all. Timber growing is fast becoming recognized as a necessary part of diversified farming. It gives winter work and wages for the winter work. Also the farm woods are being used as security for loans by the local banker or the Farm Loan Board.

BRUCE: Well, what's the best time of the year to plant trees?

EXPERT: You can get information about that from your State Forester or whatever officer handles your tree growing activities. In most sections of the country the time to plant trees is in the early spring after the frost is out of the ground and before the new growth begins. That is especially true in sections where the winters are severe.

BRUCE: Some farmers plant in the fall ---

EXPERT: Yes, good results are often obtained by planting trees in the fall before winter conditions set in. A new plantation of trees to be successful must have moisture in the ground for the first period of growth.

BRUCE: What are the best trees to grow on the farm?

EXPERT: Generally speaking, the best trees for planting on the home farm are those that grow naturally on similar soils in your part of the country.

BRUCE: Well, what kind of trees give the biggest money returns in the shortest time?

EXPERT: Generally speaking, the softwoods such as pines, spruces, larches, and firs will give you the quickest returns. Softwoods like the pines will, in general, give good growth on lands which are too poor to grow the more valuable hardwoods profitably ----

BRUCE: What do you mean "the more valuable hardwoods"?

EXPERT: Such woods as black walnut, catalpa, and some of the oaks. Some hardwoods, however, are best adapted to certain sites. You often find they are the trees used for at least part of the windbreak. Why don't you write Station _____ for Farmers' Bulletin No. 1123 on Growing and Planting Hardwood Seedlings on the Farm and for their Farmers' Bulletin No. 1453 on Growing and Planting Coniferous Trees on the Farm. Another thing that is important to consider in selecting the kinds of trees for planting is the local market for timber.

BRUCE: Different trees are best in different parts of the country?

EXPERT: Yes, the most favored conifers for the Northeastern and Central States are eastern white pine, red pine, Scotch pine, white spruce, and Norway spruce. For the South, however, loblolly pine, shortleaf pine, longleaf pine, and slash pine are most used. In the eastern part of the Great Plains, Western yellow pine, jack pine, Western white spruce, Colorado blue spruce, and Scotch pine; for the western part of the Great Plains, jack pine, Scotch pine, Western yellow pine Austrian pine, Western white spruce and Colorado blue spruce are best. Farmers' bulletin No. 1312 which tells about "Tree Planting in the Great Plains Region."

BRUCE: What kinds are good for a windbreak on dry lands farms in the plains country?

EXPERT: Box alder, green ash, caragana, Western yellow poplar, and white and Chinese elm are particularly favorable for windbreaks. To the leeward of the rows of hardwood, you might plant such softwoods as Colorado blue spruce and jack pine.

BRUCE: What trees are best for the Southwest and Northwest?

EXPERT: In the Northwest, Douglas fir, Western white pine, and Western yellow pine. In the Southwest, Western yellow pine, Douglas fir, blue spruce, Arizona cypress, Austrian pine, Chinese arborvitae. In California, Redwood, Douglas fir, white fir, Sitka spruce, Monterey pine, and Monterey spruce. But, as I said, generally speaking, the best trees for planting on the home farm are those that grow naturally on similar soils.

BRUCE: What hardwoods of the broad-leaf kind are valuable for planting?

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EXPERT: Besides those we've already mentioned there are ash, basswood, red oak, black walnut, yellowpoplar, black locust, honey locust, catalpa, and eucalyptus. But you write for those bulletins, Bruce, if you want some handy information on planting trees as a farm crop.

ANNOUNCEMENT: For the benefit of those who may not have caught the numbers of the bulletins mentioned in the talk you have just heard on Forest Tree Planting on the Farm, let me repeat:

Farmers Bulletin No. 1453 - "Growing and Planting Coniferous Trees on the Farm."

Farmers Bulletin No. 1123 - "Growing and Planting Hardwood Seedlings on the Farm."

Farmers Bulletin No. 1312 - "Tree Planting in the Great Plains Region."

Your request sent to station _____ will bring these bulletins.

1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations

which are satisfied by the functions $u_i(x, y, z)$ and $v_i(x, y, z)$ in the domain D of the space E_3 .

2. In the second part of the paper the author considers the problem of the existence of solutions of the system of equations

which are satisfied by the functions $u_i(x, y, z)$ and $v_i(x, y, z)$ in the domain D of the space E_3 .

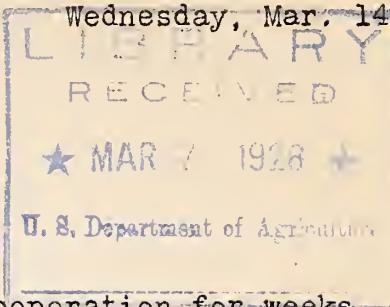
3. In the third part of the paper the author considers the problem of the existence of solutions of the system of equations

which are satisfied by the functions $u_i(x, y, z)$ and $v_i(x, y, z)$ in the domain D of the space E_3 .

1.9
In 375
U.S. RADIO FARM SCHOOL

(NOT FOR PUBLICATION)

Wednesday, Mar. 14.



Farm Economics Meeting No. 24.

SUBJECT: Cooperative Marketing of Fluid Milk.

ANNOUNCEMENT: Our farm club members have been talking cooperation for weeks. They've brought out some interesting things about it too. You see, we meet here every Wednesday to talk over the business end of farming --- That man talking there now is an expert from the Department of Agriculture ----- The other fellow is Joe Brunton -

BRUNTON: It doesn't seem possible!

EXPERT: Maybe not, Brunton. But that's the case, nevertheless;-- The greater part of the growth and development of the cooperative marketing of fluid milk has taken place within the last fifteen years.

BRUNTON: As I remember, the fluid milk cooperatives took a big jump during the war ---

EXPERT: Yes, the World War practically forced milk producers to cooperate or quit business.

BRUNTON: They claimed they were not getting enough for their milk --

EXPERT: Yes, it was the failure of the price of milk to keep pace with the fast rising prices of other commodities which forced the farmers to get together.

BRUNTON: As I recall, there was a big strike of dairymen around Chicago about that time --

EXPERT: That's right. And the success of that Chicago milk producers' strike in 1916 started a number of other similar disturbances.

BRUNTON: And out of all that, you say, came these big fluid milk cooperatives?

BRUNTON: There are quite a bunch of them now.

EXPERT: There are about 160 fluid milk marketing associations in the United States now --

BRUNTON: Some of them are pretty big, too ---

EXPERT: All in all they marketed about \$350,000,000 worth of milk last year. The biggest, one that supplies milk to New York City, handled almost \$85,000,000 worth of milk for its members in 1927. Some of that milk was transported 400 miles.

BRUNTON: That's a lot of milk and a long way to carry it. I guess with a good strong cooperative you could force the milk consumers to pay your price ---

EXPERT: Just a minute, Brunton! Too many have that idea about cooperatives----

BRUNTON: Well, that's what they are for, isn't it; to get a better price for the milk?

EXPERT: Yes, that's the prime reason for the existence of the fluid milk cooperative, but ---

BRUNTON: "But" what?

EXPERT: There are two ways of doing that. First, the cooperative marketing concern can try to get better prices through its bargaining power; and second, it can try to adjust its supply of milk to meet the needs of the market.

BRUNTON: That's what I was talking about, that first one; using the bargaining power to get better prices. Now, if we could just get all the dairymen, or nearly all of them, around here to go in -----

EXPERT: One minute, Brunton. The importance of bargaining power has been overemphasized.

BRUNTON: How's that? I thought that was the main idea ---

EXPERT: Did you ever stop to think that the principle of bargaining is pretty close kin to the monopoly idea? Advocates of that idea hope to fix prices above the level justified by supply and demand conditions, through control of a large part of the supply. The number of failures of cooperatives built on that principle is sufficient evidence that it is unsound.

BRUNTON: Then you don't think prices can be raised through bargaining power?

EXPERT: I didn't say that. Bargaining power can have some influence, if prices are below what they should be, due to lack of adjustment of price to the supply and demand of the market. However, the biggest price benefits can be obtained by so regulating the supply that it most nearly meets the market's needs.

BRUNTON: What should be the basis for milk prices?

EXPERT: Why, the use that is made of the milk.

BRUNTON: What do you mean by the "use" of the milk?

EXPERT: Whether it is consumed as fluid milk or used for making sweet cream or for manufacturing purposes.

BRUNTON: Which should bring the highest price?

EXPERT: The price of milk for fluid use should be highest, because of the supply situation. The supply of fluid milk for any market is relatively limited. Transportation and inspection costs soon reach such a point that shipment of fluid milk for long distances doesn't pay. Milk for sweet cream should bring a price next to that of fluid milk.

BRUNTON: Why is that?

EXPERT: Well, any market's supply area is larger for cream than for fluid milk. Producers of fluid milk have to compete only with others in their own milk shed; whereas, producers of cream for some eastern cities must compete with those of Canada and the Middle West.

BRUNTON: Why should milk for manufacturing purposes sell for the lowest prices?

EXPERT: Because of country-wide and world-wide competition; milk for manufacturing must necessarily be sold for the lowest price of all.

BRUNTON: Then what can the cooperative do to get better prices for its members?

EXPERT: By seeing that its members are paid for their milk on the basis of its use, and that production throughout the year is even enough to reduce the proportion of surplus which has to be sold for the less valuable uses from month to month, the cooperative association can do far more toward getting higher prices than it ever can do through attempted monopoly control or bargaining power.

And in adjusting supply to meet market demands, it must be kept in mind that too high a price for any period of time may result in an unbalanced market situation and a lower price in the end.

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1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part is a list of the names of the members of the committee who have been elected to the office of the chair.

3. The third part is a list of the names of the members of the committee who have been elected to the office of the secretary.

4. The fourth part is a list of the names of the members of the committee who have been elected to the office of the treasurer.

5. The fifth part is a list of the names of the members of the committee who have been elected to the office of the clerk.

6. The sixth part is a list of the names of the members of the committee who have been elected to the office of the assistant clerk.

7. The seventh part is a list of the names of the members of the committee who have been elected to the office of the assistant treasurer.

8. The eighth part is a list of the names of the members of the committee who have been elected to the office of the assistant secretary.

9. The ninth part is a list of the names of the members of the committee who have been elected to the office of the assistant clerk.

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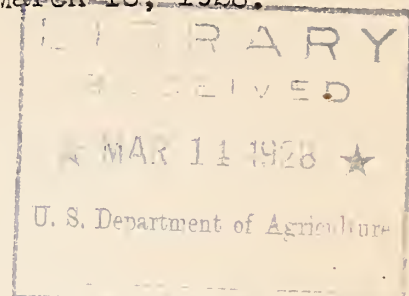
U. S. RADIO FARM SCHOOL

March 16, 1928.

NOT FOR PUBLICATION

Livestock and Dairy Meeting No. 24.

SUBJECT: Market Milk Production (I)



ANNOUNCEMENT: ---- Yes. Can't you see that bunch of milkmen and the Department of Agriculture dairy expert? -- This is dairymen's day at our farm club here. Listen, and you may pick up some pointers -----

DRYDEN: --- But there are so many things they tell us we should do! Some say that to produce clean milk you've got to do this, and some say that.

EXPERT: --- Yes, I know, Dryden. Some dairymen put too much emphasis on things that have little bearing on the quality of the milk.

DRYDEN: That's what I've been thinking. I figure that all you have to do is to pay attention to a few things; that is, the things that have the biggest bearing on the actual number of bacteria in the milk.

EXPERT: No, that's going to the other extreme! Neither extreme is advisable nor just. You should protect yourself from losses and the consumers from unclean milk.

DRYDEN: That's just the point. What's necessary to do that? That's what I would like to know.

EXPERT: Well, the first essential in producing clean milk is healthy cows. Animals affected with tuberculosis, garget, and other diseases which may contribute dangerous bacteria to milk or cause abnormal physical conditions, are not fit to produce milk for the market or for your own home. The cow's body, especially the udder, teats, and flanks, should be clean. If necessary, wash and wipe them with a clean, damp cloth before milking. And, of course, you should supply plenty of pure water to drink. Cows are entitled to drink their fill of clean, fresh water, instead of being forced to drink from mud holes or stagnant ponds.

DRYDEN: I get what you mean. Say I have clean, healthy cows, what else do I need to produce clean milk?

EXPERT: The next thing is small-top milking pails. Small-top milking pails are inexpensive. They prevent a lot of dirt dropping into the milk during the process of milking.

R-FS.3/3/28

DRYDEN: All right. Clean, healthy cows and small-top milking pails. What next?

EXPERT: Why, all your milking utensils should be thoroughly sterilized.

DRYDEN: O, I always wash my milk utensils before I put milk in them.

EXPERT: Washing the utensils is not enough. Equipment must be treated in some way to kill the bacteria which still stick to the seemingly clean surfaces. To prevent those bacteria being washed off in the milk, where they act as seed for the growth of many more, the utensils must be sterilized to kill practically all the bacteria.

DRYDEN: Of course, I scald my utensils. I meant that I washed them well before I did that.

EXPERT: That's good. That's what you should do. If you don't wash them before you sterilize them, you won't get effective sterilization. The accumulation of milk and foreign matter on the utensils will make them insani-tary and unsightly.

DRYDEN: Even sterilization doesn't kill all the bacteria, does it?

EXPERT: Well, the sterilization process kills practically all the bacteria. And it does kill all the disease-producing types of bacteria.

DRYDEN: What is the best way to sterilize the cans?

EXPERT: Usually the easiest and most effective way of using heat to kill the bacteria on dairy utensils is to steam them in a tight cabinet. You can operate a sterilizing cabinet either with or without a steam boiler, depending on what you prefer and what you need. The Department of Agriculture has a Farmers' Bulletin on Washing and Sterilizing Farm Milk Utensils. Why not write for that? It is Farmers' Bulletin No. 1473.

DRYDEN: Suppose you just have a few utensils you use?

EXPERT: In that case, you might sterilize them by placing them in boiling water so that it comes in contact with their entire surfaces. But remember, the water must be boiling to be effective. Any of you men with milking machines can get information on cleaning them from the Department's Farmers' Bulletin No. 1315. There are also a Department Leaflet No. 3. on Improved Sanitation in Milk Production and Farmers Bulletin No. 602, on "Production of Clean Milk." Write for them.

Utensils, such as pails and cans, may be steamed effectively by inverting them over a steam jet until they are thoroughly heated.

DRYDEN: How long would you steam them?

EXPERT: Until they are entirely too hot to handle with the bare hands.

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1. The first step is to identify the problem. This involves understanding the situation and the goals that need to be achieved.

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Small objects, such as separator parts, may be piled around the steam jet and a tight box inverted over them. Big equipment, such as milk coolers and bottlers, which can not be put in the sterilizing cabinet, May be sterilized best with boiling water. That is much better than shooting steam at them with a steam hose. The main thing to remember, however, is that if all milk equipment and utensils are subjected to enough heat, they will not contaminate milk. That is highly important if you expect to produce milk with few bacteria in it; milk that will keep well.

DRYDEN: Sterilized utensils, small-top milking pails, and clean, healthy cows are the main things for producing clean milk, then?

EXPERT: Yes, clean, healthy cows, Small-top milking pails, sterilized utensils, and the proper cooling and storage of the milk; but we'll talk about that some other time.

DRYDEN: Is there anything else?

EXPERT: Well, of course, those are just the main things. There are minor factors.

DRYDEN: What are they?

EXPERT: They have to do largely with the surroundings where the milk is produced and handled on the farm. For instance, you should have a milk house, not far from the barn. It should be thoroughly screened, and have facilities for washing and sterilizing the utensils and cooling and storing the milk.

The barnyard, too, should be graded and well drained and kept clean. That will help cut down the work of cleaning the cows before milking.

DRYDEN: How about the barn?

EXPERT: Of course, the barn should be kept clean. You should take out the manure at least once a day and paint or whitewash the walls and ceiling whenever necessary. The barn should be simply built, with smooth, tight walls, ceilings and floors. The floor should be tight and of nonabsorbent material so that liquid manure will not leak through. Sunlight and fresh air are two important items in sanitation. Four square feet of window glass for each stanchion is not too much. The barn should be well ventilated. Farmers' Bulletins No. 1342, on Dairy Barn Construction and No. 1393 on the Principles of Dairy-Barn Ventilation will show you how the barn should be ventilated.

ANNOUNCEMENT: For the benefit of those who may not have caught the numbers of the publications just mentioned, we will repeat the titles and numbers:

Dairy Barn Construction, Farmers' Bulletin No. 1342.

Dairy Barn Ventilation, Farmers' Bulletin No. 1393.

Improved Sanitation in Milk Production, Department Leaflet No. 3.

Production of Clean Milk, Farmers' Bulletin No. 602.

Cleaning Milking Machines, Farmers Bulletin No. 1315.

Washing and Sterilizing Farm Milk Utensils, Farmers' Bulletin 1473.

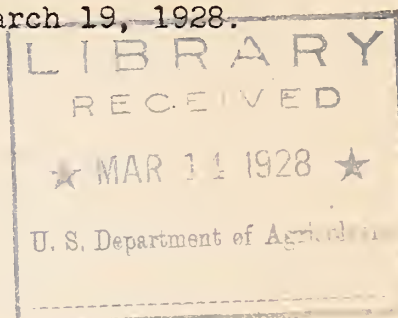
These bulletins may be obtained through this Station or by direct application to the United States Department of Agriculture.

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1.9
In 3 FS
U. S. RADIO FARM SCHOOL

March 19, 1928.

NOT FOR PUBLICATION



Crops and Soils Meeting No. 25.

SUBJECT: The Preparation of a Good Seedbed.

ANNOUNCEMENT: Our farm club meets here in the old school-house three times a week. We sit around and swap information. That Department of Agriculture man is telling some of the members about soil now-----

EXPERT: --- Make your seedbed a good one. Preparation of a good seedbed is most important ----

SMITH: What would you call a good seedbed?

EXPERT: That brings on more talk, Smith. Let's get right down to the ground on this question. --Why do you plow, and pulverize, and compact the soil anyway?

SMITH: Why, to get soil conditions right for plant growth, of course.

EXPERT: What conditions?

SMITH: The main things, I guess, are a plenty of plant food and the right amount of moisture.

EXPERT: Exactly. Crop plants are like animals. They must have food and drink. If they don't, they soon sicken and die. If there is not enough food and moisture, you are likely to get poor plant growth. That often means loss of your seed, and your work, and the use of your land.

Animals can move about from place to place and get their food and drink. Plants must get their food and water by sending their roots out into the soil. The tiny roots which spread out through the soil are all the time taking up water and plant food for the use of the stalk and the leaves above.

SMITH: Sure, we know that. How about actually getting the seedbed ready?

EXPERT: I was coming to that, Smith. In the corn belt states where wheat follows corn, the seedbed is usually prepared by disking the surface or by such surface working as may be had by the use of a disk drill, since corn is not harvested early enough to allow plowing for wheat. For most other crops, however, the plowing of the land is the foundation work in the preparation of a good seedbed.

SMITH: What is the best time to plow?

EXPERT: For early spring and summer crops, you can distribute your labor better if you plow in the fall and winter. But aside from that, you can get equally as good results from early spring plowing. You can prepare a good seedbed with the least labor and expense if you follow the plow closely with a harrow.

SMITH: I harrow each afternoon late after I've plowed the land in the morning and early afternoon.

EXPERT: That's a good system. With a big farm where a tractor is used, you could get the same results by attaching the roller and harrow behind the plow. By working close behind the plow that way, while the soil is moist and easily crumbled, you can pulverize the clods and get the seedbed ready with the least effort.

SMITH: Howabout plowing sod land?

EXPERT: I'm glad you brought that up --- In plowing sod land or fields that have a covering of green manure or stable manure, you should be careful to avoid completely turning under the furrow slice.

SMITH: Why's that?

EXPERT: That puts the organic matter at the bottom of the furrow slice, where you can't reach it with your implements and where it doesn't decay readily. If you leave the furrow slice standing at an angle, you can cut the sod and organic matter with the disk and so mix it with the surface layer of soil where it will decay and become available promptly.

SMITH: The same thing would apply to plowing fallow land that is dry and hard at the surface, wouldn't it?

EXPERT: Yes, complete turning over of the furrow slice should be avoided in such a case as that, too. Under the action of the plow, the hard surface layer has a tendency to break into big clods. If those big clods are turned to the bottom of the furrow, they will break the contact of the plowed surface with the subsoil and so interfere with the moisture coming up from the deeper layers.

1. The first part of the paper discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business or organization.

2. The second part of the paper focuses on the various methods used to collect and analyze data. It describes how different techniques can be employed to gather information and how this data can be used to make informed decisions.

3. The third part of the paper discusses the challenges faced when implementing new technologies. It highlights the need for careful planning and the importance of ensuring that the technology is integrated smoothly into existing systems.

4. The fourth part of the paper addresses the issue of data security. It outlines the risks associated with data breaches and provides strategies to protect sensitive information from unauthorized access.

5. The fifth part of the paper discusses the importance of regular updates and maintenance. It explains how keeping systems up-to-date is crucial for ensuring their reliability and performance.

6. The sixth part of the paper discusses the role of human resources in the implementation of new technologies. It emphasizes the need for training and support to ensure that employees are equipped to handle the new systems effectively.

Conclusion

7. The final part of the paper provides a summary of the key points discussed. It reiterates the importance of a systematic approach to technology implementation and the need for ongoing evaluation and improvement.

8. The paper concludes by emphasizing the importance of collaboration and communication throughout the entire process. It states that successful implementation requires the input and buy-in of all stakeholders involved.

9. The paper also includes a list of references to further reading materials. These references provide additional information on the topics discussed in the paper and serve as a resource for those interested in learning more.

10. The paper ends with a final statement on the importance of staying current in a rapidly changing technological landscape. It encourages readers to continue to explore new technologies and methods to stay ahead of the competition.

11. The paper also includes a list of appendices. These appendices provide additional data and information that support the findings and conclusions of the paper. They are included for those who want to delve deeper into the research.

R-FS 3/19/28

SMITH: Whether it is hard or easy to prepare the seedbed depends a lot on the condition of the soil, doesn't it?

EXPERT: Yes, and a lot on the way it has been worked. The four main elements of good cultivation are to some extent in the control of the farmer.

SMITH: What are they?

EXPERT: One of them is the amount of water in the soil at the time it is being worked.

SMITH: You mean we shouldn't plow when it is too wet?

EXPERT: If you plow when it is too wet, the soil becomes puddled. It becomes dense and loses that granular structure which goes with good cultivation.

The second element to take care of is the extent to which the furrow slice is exposed to freezing and to alternate wetting and drying. You know yourself, a cloddy soil tends to get granular and easy to work when it is exposed to freezing and thawing.

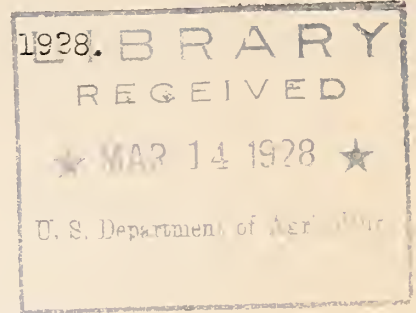
SMITH: That's so. What else?

EXPERT: The tilth of acid sour soils is improved by adding lime in some convenient form. That's the third element.

The fourth factor is the presence or the absence of organic matter in the form of remains of plants or stable manure. Large quantities of organic matter tend to mask the original physical properties of the soil. Soils such as sands or extremely heavy clays may come to have quite similar properties so far as the tilth is concerned, if they both are plentifully supplied with organic matter.

19
In 3 FS
U. S. RADIO FARM SCHOOL

Wed., March 21, 1928.



NOT FOR PUBLICATION

Farm Economics Meeting No. 25.

SUBJECT: The Farmers' Elevator Movement.

ANNOUNCEMENT: You who have been attending our farm club meetings recently know that we've been talking cooperative marketing. We've started on that again this meeting. That's what they are talking about down there now. That man in the middle is the expert from the Department of Agriculture---
Listen -----

* * * * *

EXPERT: ---Yes, there are about 4,000 farmers' elevators now operating in the surplus grain producing regions of the country.

JONES: There must be a good bit of money invested in those elevators.

EXPERT: Yes, reports received from 3,331 associations show that they have a combined paid-up capital stock of about \$57,000,000. In addition to that, they have a combined net surplus of nearly \$25,000,000.

JONES: How many farmers do they reach?

EXPERT: Well, those associations have about 420,000 stockholders, including the non-member patrons. They serve nearly 850,000 grain producers.

JONES: They must handle a tremendous amount of grain.

EXPERT: Last year, they handled more than 500,000,000 bushels, counting grain of all kinds, which sold for about \$460,000,000. Added to that, some of them handled side lines; such as livestock, coal, feed, lumber, machinery, and other supplies. The total sales value of all the products they handled was about \$630,000,000.

JONES: Most of that business has been built up in comparatively recent years, too, hasn't it?

EXPERT: Well, the present Farmers' Elevator movement may be said to have begun about twenty-five years ago.

JONES: Seems to me I heard about it before that -----

EXPERT: Yes. There were two attempts before that. But they did little more than lay the foundation for later cooperatives. Even during the first two years of the present movement, the established grain dealers almost put it out of business by boycotting the farmers' elevators. They refused to handle shipments of grain from the cooperatives.

JONES: How did the farmers get around that?

EXPERT: Well, that situation was relieved in 1904, when two Chicago grain firms decided to handle consignments from farmers' companies. Local companies were organized fast after that. The movement spread to practically all grain producing sections of the United States. Now Farmers' elevators may be considered the largest farmer-owned marketing system in the whole country.

JONES: What really started the movement? How did the farmers happen to go into it in the first place?

EXPERT: It is generally agreed, I think, that grain farmers decided to organize their own elevator companies because they considered local grain marketing conditions intolerable. They saw no way to remedy conditions except to organize and handle their own grain.

JONES: What good has it done the farmers? What have they really gotten out of it?

EXPERT: The Farmers' Elevator Movement can be credited, first of all, with improvements in local grain handling practices.

JONES: What improvements?

EXPERT: The farmers' elevator movement has led to the establishment of fairer grading, docking and weighing practices at country points and has brought about the establishment of relatively narrower local handling margins. Besides farmers are now given more courteous and considerate treatment by all country grain buyers. At the beginning of the farmers' elevator movement, the local handling practices were among the worst causes of complaint. Now there seems to be little dissatisfaction with them.

JONES: That certainly is something to the credit of farmers' elevators.

EXPERT: Yes, and another big thing they've done has been the creation of a fairer competitive situation in many local markets. This has given farmers, in general, confidence that they are getting a square deal. Wherever a farmers' elevator is a factor in a local competitive situation, farmers usually feel that the local prices are not fixed in some arbitrary manner but that they reflect terminal market conditions.

JONES: I guess that's true, generally speaking.

EXPERT: A third general benefit of the movement has been the encouragement of better production practices and lower costs of production by grain farmers.

JONES: Just how do you mean?

EXPERT: Well, the farmers' elevator movement has led to the use of better seeds and improved machinery, the cleaning of seed grains, handling of farm supplies in large quantities at lower margins of profit, saving of dockage and transportation by cleaning commercial grains before shipping, and the grinding of dockage and other feed grains. All those things have tended to benefit producers to a substantial extent in one way or another.

JONES: Do you claim all those things are due to farmers' elevators?

EXPERT: Certainly, farmers' elevators are largely responsible for those improvements. And those I've mentioned are not the only ones.

JONES: What else?

EXPERT: Well, the movement has been coordinated. Eleven state-wide associations have been formed and these have also been combined in a national association. A monthly paper is now published in the interests of farmers' elevators and grain producers.

JONES: How do those big organizations help the little farmer?

EXPERT: Aside from the specific services rendered by those associations, such as centralized auditing, insurance, adjustments, legal and other services, they have tended to strengthen the farmers' elevator movement and bring about concerted action on the part of the grain producers, as a whole, on matters of their general welfare. But on top of all these things I've been telling you about, there's another thing. It is perhaps the biggest accomplishment of the farmers' elevator movement.

JONES: What is that?

EXPERT: Why it has trained a big number of your farmers in the business end of grain marketing. Membership in farmers' elevators, and especially service as directors in farmers' elevator companies has developed many farm leaders and fitted many more farmers for greater responsibilities in the field of cooperative grain marketing.

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1.9
In 3 Fs

U. S. RADIO FARM SCHOOL

(NOT FOR PUBLICATION)

Livestock and Dairy Meeting No. 25.

SUBJECT: Farm Horseshoeing

ANNOUNCEMENT: Yes, this is our farm club. Come on in. That's the Department of Agriculture expert there talking to Ed Holt now. Ed was grumbling about something when he came in.----- Let's find out what's up.-----

HOLT: Yes, our old blacksmith is running a garage now. I tell you it is getting to be a serious question. It is getting so you hardly find anybody to shoe your farm work horses. Where blacksmith shops used to be, there are nothing but gas stations and garages now ---

EXPERT: Skilled horseshoers are certainly few and far between nowadays. In some sections farmers take their horses fifteen to eighteen miles to have them shod. But farmers like you, Holt, can solve that problem for yourselves.

HOLT: How so?

EXPERT: Shoe your own horses.

HOLT: I'm pretty handy with tools --- you have to be on the farm -- but I don't claim to be any expert blacksmith.

EXPERT: Maybe not, Holt, but it is just up to you to learn. Besides, ready-to-wear shoes for horses and mules make horseshoeing much simpler than it used to be. You can buy ready-to-wear shoes in various sizes --

HOLT: Yes, but I've seen many a horse ruined by bad horseshoeing and by failure to take care of the hoofs properly. That can start diseases of the feet and set up bad gaits. Then there's little chance to work the horse or sell it either.

EXPERT: That's true, Holt. You farmers will have to study carefully the care of the feet, how to trim and level hoofs, and the proper way to nail on shoes. But all that is explained in Farmers' Bulletin No. 1535 on "Farm Horseshoeing" published by the Department of Agriculture. Get it and study it up. Then, if you can, watch a good horseshoer do the things that bulletin tells about.

HOLT: I expect I'll have to do that. The horses and mules pulling heavy farm machinery must have shoes -----

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U. S. Department of Agriculture

EXPERT: Yes, that wears off the horny wall of the horse's foot at the ground surface faster than it can grow. Unshod horses get tender feet. In many cases the wall of the hoof will split, break, or separate from the sole of the foot. Then little rocks or gravel become embedded in the hoof and cause serious lameness.-----

HOLT: And just as likely as not, that will happen when you need the horse most; right when you're busiest. I was thrown behind in my work last season by a horse going lame on me that way.

EXPERT: A well-shod horse not only is kept in service. A well-shod horse is a more efficient worker. He can use his strength better, because he has a better footing. The better footing makes him a better puller. It is important that shod horses have regular attention, however --

HOLT: What sort of attention?

EXPERT: About every four to six weeks, you should take off the shoes, trim the hoofs, and refit the shoes. Letting the shoes stay on the foot too long sometimes causes foot troubles, such as corns and sidebones. Good shoeing, properly taken care of, will increase the serviceability of the horse or mule and add to his sale value.

HOLT: Sure. There's no question about that. But in trimming the hoofs, how do you judge how much to take off?

EXPERT: Before beginning the trimming of the hoof, you should look at the standing position of the horse's leg, particularly from the fetlock joint down. The position of the foot should correspond to the angle of the leg. If the standing position of the foot is too slanting, it shows that the toe is too high. The line of the so-called foot axis is broken backward. Reducing the toe will change the angle and bring the foot axis into a straight line.

HOLT: Then what?

EXPERT: After you have observed the standing position, raise the foot. Begin to remove the overgrowth of the sole with a hock knife, starting at the quarter. Cracks, and checks, and loose material show the overgrowth. Cut it off down to the solid sole --- but don't touch the solid sole under any circumstance. The horse needs the solid sole to protect the inner part of the feet. After you have cleaned the sole, you can reduce the wall extending far beyond the sole to normal length with hoof cutters. The upper edge of the trimmed sole will determine the amount of cutting. In other words, you will follow the upper border of the trimmed sole all the way among the hoof with the hoof cutters. In that way, you will give the heel and toe the proper length. After you do that, rasp off the hoof sole so that the wearing surface is level.

HOLT: How about fitting the shoe?

EXPERT: In fitting the shoe, it is necessary to give an absolutely even fit, as the outline of the hoof shows. In other words, fit the shoe flush with the outline of the outer border of the wall. The heels of the shoe should be well under the heels of the wall. That is very important. The heels of the hoof must rest on the iron in order to permit proper hoof expansion and contraction.

HOLT: You have to be mighty careful in nailing your shoe on, don't you?

EXPERT: Yes, you should drive the nail just outside that white looking part of the wall known as the "white-line." Be very careful not to let the nails go inside that line into the sensitive part of the foot. Drive the outside nail first. After you drive the first nail, be sure the shoe is in its proper place. Then drive in the nail on the opposite side, and so on until the nailing is completed.

HOLT: How about clinching the nails.

EXPERT: In tightening the nails, you should hold a clinching block or the pincers underneath the nails. Drive the head of the nail tight into the crease of the shoe with the hammer. In clinching the nails, bring the horse's foot forward on your knee, cut the nails close to the hoof wall, and with the rasp make a clearing cut underneath the nail on top of the wall. Then cut or twist off the end of the nail with the pincers or claw of the hammer. Put the clinching block under the nail, then with the hammer bring the nail over in a small, bending form so as to form the clinch. Rasp over the rough spots on the outside, but avoid as much as possible rasping the outside of the wall.

HOLT: How do you tell what size shoes to buy?

EXPERT: That's important, Holt. You should be very careful in measuring the feet of horses for ready-to-wear shoes. After you trim one front foot and one hind foot, measure the width of the foot, in inches, and the length of the foot from heel to toe. Be sure to allow at least one-half inch in the length of the shoe beyond the wall of the foot at the heel.

HOLT: Where can you buy ready-made horseshoes?

EXPERT: At your general store or your local hardware merchants.

ANNOUNCEMENT: That bulletin mentioned in the talk you have just listened to can be obtained by application through this Station. Just ask for Farmers' Bulletin Number 1535 on "Farm Horseshoeing."

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1.9
In 3 Fs
Southern United States

Mon. March 26, 1928

U. S. RADIO FARM SCHOOL

Crops and Soils Meeting No. 26b (Southern United States)

NOT FOR PUBLICATION

SUBJECT: Facts about Sorghum Varieties.

ANNOUNCEMENT: Here we are at another meeting of the farm club. The Department of Agriculture man is talking there now. That's Jones he's talking to. You might get some tips on farming from those two ---- Listen now---

EXPERT: --No, sorghum is not native to this country. But it certainly has become popular in the United States. We now have seven and three-quarters million acres of land devoted to it----

JONES: --That's mostly in the south, too, isn't it?

EXPERT: Yes, sorghum succeeds best in a warm climate. Most of it is grown in the southern half of the United States. Its ability to produce well under low rainfall conditions makes it most important in the semi-arid sections. That's why there is such a big sorghum acreage south and west of Kansas City in the Southern Great Plains. Sorghum, you know, is a crop that has a number of uses. About three and a half million acres are harvested for grain ----

JONES: --Wait there! -- I thought you were talking about sorghum for sirup?

EXPERT: Well, Jones, a lot of folks get mixed up that way; but there is no reason for it. Kafir, milo, feterita, (fet'-er-eeta), durra (door'-a), kao-liang (kow'lee-aug), and shallu (shall'-oo) are just as properly sorghums as are the sweet-stemmed or sirup varieties.

JONES: How much is grown for sirup?

EXPERT: As I was saying, three and a half million acres of sorghum are harvested for grain; four million for forage; that is, fodder, hay, and silage; and 184,000 acres for sirup.

JONES: Sorghum keeps me guessing. There are so many varieties. I never can keep them straight.

EXPERT: Some of that confusion is probably due to the natural crossing that takes place in the field. Pure stands of any variety are rare, especially

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among the sorghos. But there are ^{are 80 different names for the sorghos alone} about twenty important varieties. But there / and about 35 names for the varieties of grain sorghum. One variety, Honey sorgo, is grown under at least seventeen different names.

JONES: It is no wonder I was confused by the names! Where did all the sorgo varieties come from anyway?

EXPERT: Most of them were introduced from South Africa along with the kafirs. You know, they have sweet, juicy stems, but most of the seeds have a bitter principle in them something like tannin. For that reason, they are used largely for hay, fodder, silage, and sirup.

JONES: You say the sorghos are most important in the southern Great Plains?

EXPERT: Yes, they are most important in Kansas, Oklahoma, Texas, Colorado, and New Mexico, as are the grain sorghums, but they are grown to a greater or less extent in practically every State in the Cotton Belt and also in Nebraska, South Dakota, Minnesota, Iowa, Missouri, and Kentucky. In nearly every part of the Cotton Belt the sorghos will produce bigger yields of silage than corn and they are also the most dependable annual hay crop. With the possible exception of cotton, no crop beats them in drought resistance.

JONES: What is the leading variety of sorgo?

EXPERT: Sumac, or Redtop as it is commonly called, is the leading sorgo. Nearly one-third of the total acreage is sumac. For hay and fodder there is no variety better, where the growing season is long enough for it to ripen before frost.

JONES: There are some that don't ripen quite so late?

EXPERT: Yes, Black Amber, including such strains as Early Amber, Minnesota Amber, Dakota Amber, etc., is almost four weeks earlier than the Sumac and so can be grown farther north. It is second to Sumac in importance, too. In the Northern States it is the chief sirup variety as well as the one grown for fodder and hay.

JONES: How about a mid-season variety?

EXPERT: The third sorgo in importance, Orange sorgo, which also goes by the names of Honey Drip, Sugar Drip, Silvertop, Silver Drip, Ribbon cane, etc., is a mid-season variety. It ripens in about 112 days. It is popular in all except the most northern States of the sorghum region. It can be used for sirup, hay, fodder, or silage to good advantage.

Now, Honey sorgo, which ranks fourth in importance, is a big and very late variety. It takes about 136 days to mature. Honey sorgo is one of the best sirup varieties, making big yields of superior sirup. It is also very good for silage. It is grown under a number of names; such as, Japanese cane,

Japanese ribbon cane, Seeded Ribbon, Blue Ribbon, Texas Ribbon, Texas Sugar cane, Red-seed cane, Japanese Honey Drip, etc.

JONES: What are some of the others?

EXPERT: There is Red Amber, but it is quite susceptible to head smut. There is also Sourless sorgo, called White Orange, Graytop, and African millet, which is better than Orange for forage, but less valuable for sirup. Colman, which also has a lot of other names, is an excellent mid-season sirup variety which can also be used for forage. Other varieties are Sapling or Saccaline, Planter sorgo, Gooseneck sorgo, Red X, Collier, and Folger.

JONES: No wonder I was confused! There are not so many varieties of grain sorghums, are there?

EXPERT: No, there is not so much confusion among grain sorghums. The leading classes are kafir and milo, but there are several varieties of each. Feterita, hegari (hē-gera), Darso, Freed, Schrock, shallu, durra, and kaoliang are less important than kafir and milo.

JONES: Kafirs are good for silage and forage as well as grain, are they not?

EXPERT: Yes, that's on account of their leafy and somewhat juicy stems. The kafirs are grown principally in Kansas, Oklahoma, Texas, New Mexico, Missouri, and Colorado. The biggest acreage is in Kansas.

JONES: What are the different varieties of kafir?

EXPERT: The leading varieties are Blackhull, Dawn or Dwarf, Red, and Pink.

JONES: How about the milos?

EXPERT: Milos are best adapted to hot, dry irrigated sections of the Southwest. The chinch bugs get them in eastern Kansas and Oklahoma. The milos are considered very resistant to drought, but also produce big yields under irrigation. Dwarf Yellow is the leading variety.

JONES: What are some of those other sorghums grown for? Say, feterita?

EXPERT: Feterita is harvested almost entirely for grain. It has a reputation for producing grain in unfavorable seasons. Now Hegari produces good forage and sometimes ^{good} yields of grain in western Texas and southern Arizona. It does well under irrigation. Darso, grown principally in Oklahoma, and Texas, is usually not hurt by bugs or birds, but is rather unpalatable. Shrock is also rather unpalatable. Schrock sorghum is being grown in Mississippi under the name of Sagrain. Durra, also called "Egyptian corn" and "Jerusalem corn" is grown chiefly in California for chicken feed. Shallu, variously known as "Egyptian wheat", "California Rice-corn" etc. is not worth considering in comparison with kafir and milo and the kaoliangs, while important in China, do not seem to be able to compete with other varieties in this country.

ANNOUNCEMENT: You who have not received the three radio short-course bulletins on The Farm Business, Marketing Farm Products, and Cooperative Marketing can obtain them free of charge by application to this Station.

1.9
In 3 Fs
Northern States

Mon., March 26, 1928

U. S. RADIO FARM SCHOOL

Crops and Soils Meeting No. 26

NOT FOR PUBLICATION

SUBJECT: Preparing and Planting the Farm Garden. (a-Northern States)

ANNOUNCEMENT: Here we are at another meeting of the farm club----- The Department of Agriculture man is talking there now---- That's Jones he's talking to. You might get some tips on farming from those two ---- Listen, now-----

JONES: ---- Yes, I want to have a good garden this year. I expect to make it big enough to raise all the vegetables my family needs ---- By the way, how much land do you think it will take?

EXPERT: Well, the average farm family needs a garden of about a half to one acre of land. Even then, you may have to grow the main crop of potatoes outside the garden.

JONES: What would you try to raise in the garden?

EXPERT: In addition to the annual vegetables, you should have a bed of asparagus, several hills of rhubarb, a few plants of horse radish, a bed of strawberries, raspberries. Some farmers have dewberries and blackberries, too. The garden should be located near the house and it should be fenced to protect it from poultry, dogs, and other livestock.

JONES: What is the best fertilizer to use in a garden?

EXPERT: Manure. You should turn under a liberal coating of manure each year.

JONES: Doesn't coarse manure have a tendency to cause root crops to make rough and uneven growth?

EXPERT: Yes, it does. In addition to manure, you may use commercial fertilizers to advantage. It is really hard to get land too rich for lettuce, celery, cabbage potatoes, cucumbers, squashes, and many other garden crops. You must be careful, however, to avoid using too much fertilizer on land

where tomatoes, Lima beans, and a few other such crops are grown.

JONES: How about plowing the garden?

EXPERT: If your garden soil is heavy, it would have been better for you to have plowed it in the fall, so the upturned soil would have been exposed to freezing and thawing during the winter. Fall plowing is also of considerable value in the control of garden insects and diseases. If your land is light loam or sandy soil or is particularly subject to blowing you should never plow until spring. In no case, should you plow when the soil is wet. You should practice a certain degree of garden sanitation ----

JONES: What do you mean, "garden sanitation"?

EXPERT: For example, tomato and melon vines or any garden plants showing leaf diseases had better be burned before you plow. Your garden should be so arranged that it can be plowed with a two-horse plow. Before planting the soil should be pulverized with a disk harrow, a smoothing harrow, a roller, or all three, so that it will be fine and mellow for planting.

JONES: Would you use lime on the garden?

EXPERT: Most garden crops are benefited by a moderate use of lime to correct any acidity of the soil. Potatoes are an exception. Lime favors the development of scab on potatoes. On the other hand, spinach and beets must have lime. Celery, lettuce, and cabbage usually are helped by moderate applications of lime about once every three years.

JONES: When would you put the lime on the garden?

EXPERT: In the spring of the year; after plowing and before harrowing.

JONES: What do you think of wood ashes for fertilizer?

EXPERT: They are valuable. Those that are kept under cover, especially. Wood ashes contain some lime and considerable potash. Sifted coal ashes may be used to advantage for mixing with extremely heavy soils to make them lighter and easier to work.

JONES: Suppose the land is not naturally well drained?

EXPERT: Good drainage is important. If the land is not naturally well drained, you should put in tile, stone, poles, or some other form of drains to carry off the surplus water.----

JONES: ---- I want to get my garden started early ----

EXPERT: That's a good idea, Jones. Early planting of the more hardy vegetables like radishes, beets, peas, spinach, onions, cabbage, potatoes, lettuce, and so forth, is desirable. A little later you can put in the moderately hardy crops, such as corn, snap beans, cauliflower, carrots, and Swiss chard. Finally, you can plant the very tender crops such as tomatoes, Lima beans, peppers, eggplant, cucumbers, melons, and squashes. Early plants of tomatoes, peppers, eggplant, lettuce, and cabbage may be started in the house or in a hotbed or you can buy them from a local plant grower or from some southern grower of hardy vegetable plants. A hotbed or coldframe, however, is really a big help in starting an early garden. Another important point in connection with growing a satisfactory garden is to keep right on planting certain crops so as to have a supply coming on all the time.

JONES: What vegetables can you do that with?

EXPERT: That applies especially to peas, snap beans, carrots, beets, sweet corn, and tomatoes. Several plantings of lettuce and spinach, both in the Spring and Fall, will give you a supply of those vegetables over a much longer season.

JONES: Gardens need a good deal of cultivation, don't they?

EXPERT: It is a good plan to cultivate the garden at least once a week. Cultivation of the garden, you know, is important mainly to keep down weeds. In planning your garden, you should arrange the rows for working with a horse-drawn cultivator, so as to save hand work. Many farmers plant their gardens with a wide turning row at each end, so that many of the crops can be cultivated with a two-horse riding cultivator.

JONES: How about watering the garden?

EXPERT: Most farmers depend on rainfall for that. Where a farmer has plenty of water, however, it may pay him to water some of the garden crops during dry spells. Mulching tomatoes, corn, Lima beans, peppers, and eggplant with straw or strawy manure, will usually pay during dry seasons, especially on farms where the straw is plentiful and can be had for the hauling.

JONES: Thanks for the suggestions. I want a good garden this year.

EXPERT: Well, you'll find your garden about the most profitable piece of land on your farm. Garden crops yield a high return as compared with most farm crops. But remember, Jones, good seed is essential in growing a successful garden. There is probably no place in farm operations where quality counts so much as in the selecting and buying of garden seeds.

JONES: That's another thing I was going to ask you about. Tell me the amount of seed of the various vegetables it would take to plant 100 feet of row.

1. The first part of the report is a general
introduction to the subject of the study.
It discusses the importance of the study
and the objectives of the research.
The second part of the report is a
review of the literature on the subject.
It discusses the work of other researchers
in the field and identifies the gaps in
the knowledge.
The third part of the report is a description
of the methodology used in the study.
It discusses the data collection methods
and the statistical analysis used.

4. The fourth part of the report is a
discussion of the results of the study.
It discusses the findings of the research
and compares them with the results of
other studies in the field.

5. The fifth part of the report is a
conclusion and a list of references.

6. The sixth part of the report is a
summary of the findings of the study.
It discusses the main results of the
research and the implications of the
findings for future research.

7. The seventh part of the report is a
list of references. It includes a list of
the books, articles, and other sources
used in the study.

8. The eighth part of the report is a
list of appendices. It includes a list of
the tables, figures, and other materials
used in the study.

9. The ninth part of the report is a
list of abbreviations. It includes a list of
the abbreviations used in the study.

10. The tenth part of the report is a
list of acknowledgments. It includes a list
of the people and organizations that
provided support for the study.

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Also give me those planting dates again?

EXPERT: You can get all that information and a lot more from the Department of Agriculture's Farmers' Bulletin Number 937. Why don't you write for it. Ask for Farmers' Bulletin Number 937, on "The Farm Garden in the North".

ANNOUNCEMENT: That Farmers' Bulletin 937 can be obtained by application through this station. You can also get facts about farm business methods in three bulletins which can be obtained free of charge through this station. One of the bulletins deals with the Business of Farming. Another with farm marketing products, and a third with cooperative marketing. Send in for a request card.

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Mon., March 26, 1928
U. S. Department of Agriculture

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In 3FS
Northern Great Plains Region

U. S. RADIO FARM SCHOOL

Crops and Soils Meeting No. 26.

NOT FOR PUBLICATION

SUBJECT: Preparing and Planting the Farm Garden (b-Northern Grt.Plains)

ANNOUNCEMENT: Here we are at another meeting of the farm club. The Department of Agriculture man is talking there now. That's Jones he's talking to. You might get some tips on farming from those two ---- Listen, now----

EXPERT: More farm gardens are needed in the northern Great Plains.

JONES: Huh ---- maybe so. But how can you raise a garden in this dry country?

EXPERT: If you use intelligent management you can raise a good farm garden every year.

JONES: Look what we are up against. We not only have little rain and lots of wind, but growing seasons are short. Not only are they short but they are indefinite. You never can tell when killing frosts may happen in the spring and fall.

EXPERT: That's true. And, of course, the yields may be somewhat smaller than those farmers in more favored sections get, but you can offset that.

JONES: How can we offset it?

EXPERT: Why, by simply planting larger areas; more land.

JONES: That takes labor. Labor is scarce.

EXPERT: Yes, man labor is scarce. For that reason, you should use horse labor and machinery as much as possible.

JONES: How much land should it take for a family of five people?

EXPERT: Oh, one acre is enough to grow the vegetables for an average farm

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family of five.

JONES: How much would the seed cost?

EXPERT: Seed and plants for a garden an acre in size will probably cost about ten or twelve dollars.

JONES: Well, what are the main things to look out for in gardening around here?

EXPERT: First, you should make a definite planting plan, so you will have enough plants and seed on hand.

JONES: That's what I want you to help me out with --- those plans.

EXPERT: You should follow a system of crop rotation; to provide the necessary food requirements for special crops and to aid in eliminating plant diseases and insect pests.

JONES: But our growing seasons are short----

EXPERT: Yes, you should select early maturing varieties of vegetables. The harvest season may be extended by planting early maturing varieties in succession. You should practice wide spacing and thorough and clean cultivation, so as to conserve all available moisture. Also keep crops growing with as little check as possible, and make use of insecticides and fungicides as you need them.

JONES: What sort of land would you use?

EXPERT: Select any piece of land which has soil suitable to raise a good crop of corn. A level piece, or one having a very slight slope to the north or northeast is most desirable, for the garden.

JONES: Why so?

EXPERT: On such ground, less danger rises from heavy rains or drying out by hot winds.

JONES: I'd need some kind of windbreak, wouldn't I?

EXPERT: Well, protection from high winds, especially on the west or northwest side, is a very good thing; although perhaps not absolutely necessary.

JONES: What would you advise me to plant for that windbreak?

1. The first part of the report

2. The second part of the report

3. The third part of the report

4. The fourth part of the report

5. The fifth part of the report

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15. The fifteenth part of the report

16. The sixteenth part of the report

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EXPERT: A row of Siberian pea trees, Tatarian maples, or Russian olives on the most exposed sides is not hard to establish. That should give your garden the desired protection within three or four years from the time of planting. In your farm garden, you should have plenty of room for wide spacing in planting and enough land to allow for possible low yields through unforeseen circumstances.

JONES: How about preparing the soil?

EXPERT: Well, in preparing the soil, plow deep. Deep plowing is important. And when part of the garden is manured, the manure should be spread as finely and evenly as possible, then disked into the topsoil, and then the whole turned under 7 or 8 inches deep.

JONES: When would you do that?

EXPERT: In the fall just before the ground freezes is the best time, of course. The manure is in the best condition if it has been composted the season before. As early in the spring as the soil is in working condition, you should harrow it several times and smooth it with some kind of float or planker.

JONES: Would you start the vegetables indoors?

EXPERT: Well, long-season or hot-weather crops should be started indoors and set out in the field later, when the weather becomes settled. But most of the common vegetables may be sown in the ground where they are to grow. Seeds that take a long time to germinate and are more or less frost resistant may be planted as soon as the ground can be worked.

JONES: Just what kinds do you mean?

EXPERT: Onion seeds and sets, lettuce, beets, and parsnips, are rather hardy.

JONES: How about such things as rutabagas and carrots? They are hardy.

EXPERT: Yes, you may plant them early in the spring, but if you grow them during the heat of the season, they develop strong, disagreeable flavors that make them unfit for food. You had better plant such vegetables as rutabagas and carrots, as late in the season as possible; so they will make their biggest growth in the fall, when the weather is cool.

JONES: Will you give me a schedule, telling me what to plant and when to plant it?

EXPERT: All right. Here in the last half of March, indoors you could plant early cabbage, cauliflower, tomatoes, eggplant, peppers, and celery.

JONES: It's nearly April now----

1. The first part of the report

describes the general situation of the country and the progress of the work. It also mentions the names of the persons who have been engaged in the work and the results of their labors.

2. The second part of the report

contains a detailed account of the work done during the year. It gives a list of the persons who have been engaged in the work and the results of their labors.

3. The third part of the report

contains a list of the persons who have been engaged in the work and the results of their labors. It also mentions the names of the persons who have been engaged in the work and the results of their labors.

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contains a list of the persons who have been engaged in the work and the results of their labors. It also mentions the names of the persons who have been engaged in the work and the results of their labors.

8. The eighth part of the report

R-F.S. 3/26/28

EXPERT: Well, early in April you can plant head lettuce indoors. In the latter part of April you might plant fall cabbage and cauliflower indoors or in a coldframe. Outdoors, in the last half of April, you can plant smooth peas, onions, carrots, parsnips, lettuce, radishes, and spinach. Early in May you can plant wrinkled peas, beets, and potatoes outdoors and you can set out early cabbage and cauliflower if they are well hardened by that time. You can also plant sweet corn, wax beans, cucumbers, squashes, pumpkins, melons, and the second planting of lettuce, radishes, spinach, and carrots. By the middle of May, you can plant navy beans outdoors, too. By the last week in May, you can plant fall beets, rutabagas, the second planting of sweet corn, wax beans, wrinkled peas, and the third planting of carrots. Also set out late cabbage, cauliflower, tomatoes, eggplant, peppers and celery the latter part of May.

JONES: Some long-season vegetables are apt to be caught by frost ----

EXPERT: Yes, special treatment calculated to hasten maturity is advisable for those. Tomatoes, for instance, should be pruned to a single stem and trained to stakes for early ripening. ---- I'm certainly glad to know you are planning a garden, Jones; for more farm gardens are needed in the northern Great Plains.

ANNOUNCEMENT: The United States Department of Agriculture has prepared three pamphlets dealing with the farming business, for distribution to radio listeners. The first is on "The Business of Farming," the second on "Marketing Farm Products," and the third on "Cooperative Marketing." These pamphlets may be obtained free of charge by application to this station.

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The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a full understanding of the present. The author then proceeds to discuss the various factors that have shaped the development of the United States, including the role of the government, the influence of the economy, and the impact of the culture. The author concludes by stating that the study of the history of the United States is a task of great importance and one that should be undertaken by all who are interested in the future of the country.

The second part of the paper discusses the role of the government in the development of the United States. It is argued that the government has played a central role in the shaping of the country, and that its actions have had a profound impact on the lives of the people. The author then discusses the various ways in which the government has influenced the development of the country, including through its policies, its laws, and its actions. The author concludes by stating that the government is a powerful force in the development of the United States, and that its actions should be carefully monitored and controlled.

The third part of the paper discusses the influence of the economy on the development of the United States. It is argued that the economy has played a central role in the shaping of the country, and that its actions have had a profound impact on the lives of the people. The author then discusses the various ways in which the economy has influenced the development of the country, including through its policies, its laws, and its actions. The author concludes by stating that the economy is a powerful force in the development of the United States, and that its actions should be carefully monitored and controlled.

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U. S. Radio Farm School

Wed., March 28/28

In 3 Fs

NOT FOR PUBLICATION

Farm Economics Meeting No. 26.

SUBJECT: Farmers' Terminal Associations Marketing Grain.

ANNOUNCEMENT: Last week our farm club was talking about cooperative grain elevators. The Department of Agriculture man was telling us about the growth of those cooperatives. But as somebody said afterward, he didn't go into the farmers' terminal associations for marketing grain. Some of the members said they were going to ask about those at this meeting. That's what must be going on down there now --- Listen ---

HAMDEN: How about these farmers' grain co-ops at the terminal markets?

EXPERT: You mean the cooperative commission companies and the pooling agencies?

HAMDEN: Yes.

EXPERT: Well, you know, the tendency in many lines of business these days, is toward consolidation and large-scale operations. Farmers are keeping step with that idea. This has led to their setting up organizations at the terminal markets.

HAMDEN: What's the difference between the cooperative commission companies and the pooling agencies? How do the cooperative commission companies work, for instance?

EXPERT: Well, the cooperative commission companies have been formed mainly to handle grain bought by farmers' elevators. The Farmers' Union has formed some of them. The Equity Union has formed others. And the associations of farmers' elevators have formed still others.

HAMDEN: They had pretty rough sledding at first, didn't they?

EXPERT: Yes, the early associations of that type did have considerable trouble. You see, the organized Boards of Trade and Grain Exchanges, which those farmers' agencies were trying to get membership, were not made up so as to encourage membership of cooperative associations. But Federal and State laws have been passed to make things easier for them. There are now farmers' cooperative commission companies on grain exchanges or boards of trade at Chicago, Kansas City, Omaha, Minneapolis, Hutchinson, and other cities. Several agencies are represented at two or more markets.

HAMDEN: Are the Commission Companies financed by the elevators or are they owned directly by the farmers?

EXPERT: They are usually financed and supported by local farmers' elevators which own the capital stock and furnish the business from country points. In certain cases, however, the stock is owned directly by the farmers.

HAMDEN: Are the elevators that hold the stock under contract to sell or consign the grain to the co-op commission company?

EXPERT: Not usually. The associations have to get their business by giving service equal to or better than their private competitors. But the fact that farmers' elevators and independent elevators that do not hold any stock and have no direct interest in the company sell through them, shows that they can give that sort of service.

HAMDEN: Do the Cooperative Commission Companies own local elevators?

EXPERT: Not as a rule. But in a number of cases they have leased or made contracts for the operation of local elevators. One or two have acquired the local elevators, and several other companies are now considering the possibilities of acquiring both county and terminal elevators.

HAMDEN: Now, how about these pooling associations? Don't the farmers have to sell through the pool?

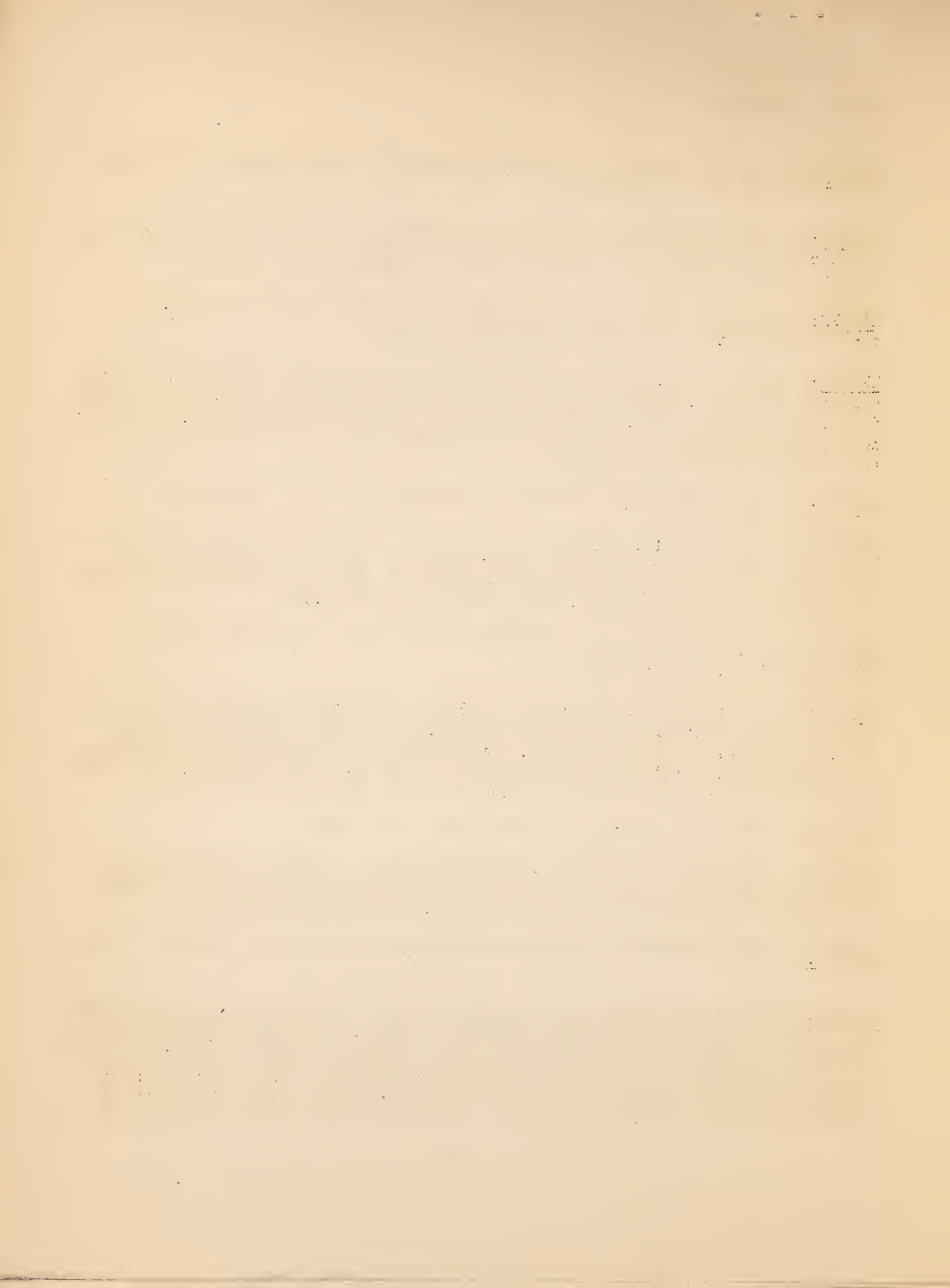
EXPERT: Yes, the membership in the pooling association is held directly by farmers and the farmers who support the pools are under contract to deliver their grain over a period of years, usually five. The pools which confine their operations mainly to the handling of wheat make contracts with the local elevators for the acceptance and delivery of the wheat from the farmers.

HAMDEN: Some of the pools are pretty big, aren't they?

EXPERT: Yes, they are State or regional in scope. There are eight grain pools now operating. They either have their own sales offices on our larger terminal markets or are represented in the joint sales agencies.

HAMDEN: Which is the best system, the Cooperative Commission Company or the pool?

EXPERT: Well, the Cooperative Commission Companies and the pools are attacking the terminal market problem from different angles. The Cooperative Commission Companies receive their grain, for the most part, from local farmers' elevators, which have bought the grain from farmers at the market price. Since farmers elevators desire to avoid the risk of holding grain they either hedge their purchases or sell soon after delivery. For this reason either the grain or



hedging orders are turned over to the cooperative commission companies almost as fast as the grain is delivered by farmers. This means that in effect a larger part of the grain is sold in the few months after harvest than during later periods.

HAMDEN: Doesn't that force down prices?

EXPERT: No, those who favor that system, say not. They contend that our organized grain exchanges can absorb heavy deliveries of grain without any serious depression of prices. Those who favor the pool, however, do contend that their system has a less depressing effect on prices.

HAMDEN: How do the pools protect themselves against a drop in prices?

EXPERT: The pools take the grain delivered by the farmers through local elevators. But they advance only about two-thirds of the market value; so they are reasonably well protected against price drops.

HAMDEN: Then they can hold the grain until they think conditions are right for its sale?

EXPERT: Yes. That's the idea. The members of a pool are paid the average price for which their grade of grain sold. Having advanced only part of the market value, the pool is usually in a position to make additional payments as it sells the grain and a final payment at the end of the pooling period.

HAMDEN: Well, which do you think is the best system? The pooling system or the Cooperative Commission Company system?

EXPERT: I don't propose to argue the merits of those two types of cooperative agencies. The successful operation of terminal marketing agencies is a development of fairly recent years. Time will bring out the advantages and disadvantages of each system. But that's not the significant thing to me.

HAMDEN: What is the significant thing?

EXPERT: Why, the fact that many grain producers now feel that they should be represented in the terminal grain markets of this country by their own marketing associations. And, not only that, but that grain farmers have made some definite progress in that direction.

ANNOUNCEMENT: This Station now has for free distribution to any of its listeners who are interested three radio short-course bulletins. Bulletin No. 1. deals with "The Business of Farming" Bulletin No. 2. tells about "Marketing Farm Products" and Bulletin No. 3. is on the subject of "Cooperative Marketing." If you wish any or all of these pamphlets, we will be glad to see that they are sent to you.

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U. S. RADIO FARM SCHOOL

Fri., March 30, 1928

NOT FOR PUBLICATION

Livestock and Dairy Meeting No. 26.

SUBJECT: Market Milk Production (II)

ANNOUNCEMENT: --- Well, there's that dairy expert from the Department of Agriculture again. I guess he's going to tell our farm club here some more about producing market milk --- Let's get down closer where we can hear what they are saying -----

DRYDEN: -- Tell us, how can we avoid getting feed and weed flavors in the milk. Some of my customers often complain that my milk doesn't smell or taste right ----

EXPERT: That means you should feed properly. Investigation has shown that when corn silage, legume silage, green alfalfa, cabbage, or turnips are fed to dairy cows one hour before milking, they seriously affect the flavor and odor of the milk ----

DRYDEN: How about feeding green corn?

EXPERT: Green corn, green oats and peas, pumpkins, and sugar beets have practically no effect on the flavor and odor of milk. Now, green rye, green cowpeas, potatoes, dried beet pulp, or carrots do have a slight effect.

DRYDEN: Milk can take up odors from the air in the barn, too, can't it?

EXPERT: Well, feed-tainted barn air may have some effect on the flavor of milk, but it doesn't amount to much. You see, Dryden, feed flavors and odors are imparted to milk mainly through the body of the cow, rather than by absorption from the surrounding air.

DRYDEN: How would you get rid of them; by aerating the milk?

EXPERT: Proper aeration will reduce strong feed flavors and odors in milk. It may entirely eliminate slight feed flavors and odors. But preventive measures are always best. Feed flavors may be avoided by controlling the time of feeding. In most cases feed flavors are not imparted to milk except for a few hours after feeding.



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DRYDEN: When would you feed the cows then?

EXPERT: Why, simply feed your dairy cows highly flavored feeds immediately after, and not just before milking.

DRYDEN: Some weeds seems to flavor the milk hours after the cow has eaten them.

EXPERT: Yes, that's true. Of course, your pastures should be cleared of weeds which cause objectionable flavors. Until you do that, you should take the cows off pasture as long as possible before milking. In some cases, you may have to give up pasturing until you get rid of the weeds.

DRYDEN: I have a cold spring near the barn. It gives me plenty of cold water the year around for cooling.

EXPERT: You certainly are lucky. If you cool the milk promptly and keep it cool, you'll check the development of flavors and odors which come from the action of bacteria. Given a handy supply of cold water, most any milk producer can make it save money for him ----

DRYDEN: How do you mean?

EXPERT: Almost any dairyman can build a cooling tank big enough to hold his milk cans. Then he can put that tank where water from the spring or well will run through it. Then, as soon as the milk is drawn from the cows, he can cool it and set the cans in cold water up to their necks.

DRYDEN: I do that. Every time I come from the barn with more milk, I stir the milk a little, so it will cool more quickly. It isn't much trouble.

EXPERT: That's a good plan.

DRYDEN: A neighbor of mine, Joe Hawkins, was asking me about how to cool milk the other day. He hasn't got any running water on his place.

EXPERT: What did you tell him?

DRYDEN: I advised him to use ice in a cooling tank to bring the milk down to fifty degrees or below.

EXPERT: Yes, that's a good idea. If he wishes to cool his milk quickly, for early delivery, he would have to have a surface cooler over which the milk is allowed to flow slowly while cold water is run through it. Of course this requires running water. One thing is certain, if he is selling milk which must be hauled some distance or shipped by rail, he must cool the milk thoroughly in some way, if it is to be good quality milk. If he wants to find out about cooling milk, why doesn't he write to the State agricultural college or the United States Department of Agriculture.



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DRYDEN: Are there any bulletins they can send him?

EXPERT: Yes, the Department has a bulletin on "cooling Milk and Cream on the Farm." Tell him to ask for Farmers' Bulletin Number 976.

And speaking of cooling milk and controlling the bacteria count in milk, there's another question that a number of dairymen might pay attention to.

DRYDEN: What's that?

EXPERT: Many times dairymen make untiring efforts to prevent milk from becoming contaminated while it is being produced. They cool it quickly and thoroughly. Then they let it stand in the sun by the side of the road for an hour or two waiting for the milk truck to pick it up. -----

DRYDEN: Yes, but we have something else to do. I know I can't meet the milk truck at a certain time.

EXPERT: If that's the case, you can at least provide shade for the milk cans and a canvas covering for the cans, to prevent the milk warming up fast. If you haul the milk yourself, you should keep it carefully covered. You should insist that anyone else who hauls it does the same.

DRYDEN: Do you think it would pay to provide insulated jackets for the cans in cases of long hauls?

EXPERT: Well, it might. In any event, you should take every precaution to keep the milk cold in transit.

DRYDEN: These days, we hear of milk being hauled long distances and staying in good condition.

EXPERT: Yes, but that is possible only by cooling it thoroughly before starting it on its journey and keeping it cold until it reaches its destination. Bacteria do not grow fast in cold milk.

ANNOUNCEMENT: The Bulletin mentioned in this talk is Farmers Bulletin No. 976, on "Cooling Milk and Cream on the Farm." It may be obtained through this Station. This Station also has for free distribution to its interested listeners three radio short course pamphlets on The Farm Business, Marketing Farm Products, and Cooperative Marketing. If you wish any or all of these, write us for them.

